



LL	NN	NN	KK	KK	SSSSSSSS	TTTTTTTTTT	AAAAAA	TTTTTTTTTT	SSSSSSSS	000000	
LL	NN	NN	KK	KK	SSSSSSSS	TTTTTTTTTT	AAAAAA	TTTTTTTTTT	SSSSSSSS	000000	
LL	NN	NN	KK	KK	SS	TT	AA	TT	SS	00	00
LL	NN	NN	KK	KK	SS	TT	AA	TT	SS	00	00
LL	NNNN	NN	KK	KK	SS	TT	AA	TT	SS	00	00
LL	NNNN	NN	KK	KK	SS	TT	AA	TT	SS	00	00
LL	NN	NN	KKKKKK	KK	SSSSSS	TT	AA	TT	SSSSSS	00	00
LL	NN	NN	KKKKKK	KK	SSSSSS	TT	AAAAA	TT	SSSSSS	00	00
LL	NN	NNNN	KK	KK	SS	TT	AAAAA	TT	SS	00	00
LL	NN	NNNN	KK	KK	SS	TT	AAAAA	TT	SS	00	00
LL	NN	NN	KK	KK	SS	TT	AA	TT	SS	00	00
LL	NN	NN	KK	KK	SS	TT	AA	TT	SS	00	00
LLLLLLLLLL	NN	NN	KK	KK	SSSSSSSS	TT	AA	TT	SSSSSSSS	000000	....
LLLLLLLLLL	NN	NN	KK	KK	SSSSSSSS	TT	AA	TT	SSSSSSSS	000000	....

LL	IIIIII	SSSSSSSS
LL	IIIIII	SSSSSSSS
LL	II	SS
LL	II	SS
LL	II	SS
LL	II	SS
LL	II	SSSSSS
LL	II	SSSSSS
LL	II	SS
LL	II	SS
LL	II	SS
LL	II	SS
LLLLLLLLLL	IIIIII	SSSSSSSS
LLLLLLLLLL	IIIIII	SSSSSSSS



```
0001 0 module lnk_statsout ! LINKER STATISTICS ROUTINE
0002 0 (ident = 'V04-000'
0003 0 ,addressing_mode
0004 0 (external = general
0005 0 ,nonexternal = long_relative
0006 0 ) =
0007 0
0008 1 begin
0009 1
0010 1 *****
0011 1 *
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0029 1 *
0030 1 *
0031 1 *****
0032 1 ++
0033 1 FACILITY: LINKER
0034 1
0035 1 ABSTRACT: ROUTINE DOES ALL THE WORK OF GATHERING AND OUTPUTTING STATISTICS OF THE LINK
0036 1
0037 1
0038 1 ENVIRONMENT: STARLET NATIVE MODE
0039 1
0040 1 AUTHOR: T.J. PORTER, CREATION DATE: 27-JUN-77
0041 1
0042 1 MODIFIED BY:
0043 1
0044 1 V03-002 ADE0001 Alan D. Eldridge 14-Aug-1984
0045 1 Only output the options file contents if a full map
0046 1 is requested.
0047 1
0048 1 V03-001 JWT0099 Jim Teague 14-Mar-1983
0049 1 New CLI interface.
0050 1
0051 1 --
0052 1
0053 1 TABLE OF CONTENTS:
0054 1
0055 1 forward routine
0056 1 lnk$statsout : novalue; ! OUTPUT THE STATISTICS
0057 1 :
```

```
58      0058 1 ! INCLUDE FILES:
59      0059 1
60      0060 1 library 'LIBL32';           ! GET PROCESS HEADER DEFINITIONS
61      0061 1
62      0062 1 require 'PREFIX';         ! USEFUL MACROS AND VARIABLES
63      0177 1
64      0178 1 library 'DATBAS';         ! LINKER DATA STRUCTURES
65      0179 1
66      0180 1 sd ('$LINE');
67      0181 1
68      0182 1 ! MACROS:
69      0183 1
70      0184 1 macro
71      0185 1     textadr = 0,0,32,0%,
72      0186 1     fltsadr = 1,0,32,0%,
73      0187 1     cputadr = 2,0,32,0%,
74      0188 1     stimadr = 3,0,32,0%;
75      0189 1
76      0190 1 ! EQUATED SYMBOLS:
77      0191 1
78      0192 1 literal
79      0193 1     bufferleng = 132;      ! OUTPUT LINE BUFFER
80      0194 1
81      0195 1 ! EXTERNAL REFERENCES:
82      0196 1
83      0197 1 external
84      0198 1     lnk$gl_optextp : ref block [, byte],
85      0199 1     lnk$gl_ctlmsk : block [, byte],
86      0200 1     lnk$gl_minaddr,
87      0201 1     lnk$gl_memlhd,
88      0202 1     lnk$gl_cpustim,
89      0203 1     lnk$gl_futlsrch,
90      0204 1     lnk$gl_librecs,
91      0205 1     lnk$gl_nmodsexp,
92      0206 1     lnk$gl_nmodsrch,
93      0207 1     lnk$gl_objrecs,
94      0208 1     lnk$gw_dbgrecs : word,
95      0209 1     lnk$gl_dbgestim,
96      0210 1     lnk$gw_dstvbn : word,
97      0211 1     lnk$gw_dstblks : word,
98      0212 1     lnk$gl_dstend,
99      0213 1     lnk$gw_symrecs : word,
100     0214 1     lnk$gw_gstreccs : word,
101     0215 1     lnk$gq_startim,
102     0216 1     lnk$gq_endtim,
103     0217 1     lnk$gq_ps1stim,
104     0218 1     lnk$gq_alostim,
105     0219 1     lnk$gq_ps2stim,
106     0220 1     lnk$gq_mapstim,
107     0221 1     lnk$gq_stbstim,
108     0222 1     lnk$gl_ps1cput,
109     0223 1     lnk$gl_alocput,
110     0224 1     lnk$gl_ps2cput,
111     0225 1     lnk$gl_mapcput,
112     0226 1     lnk$gl_stbcput,
113     0227 1     lnk$gl_ps1flts,
114     0228 1     lnk$gl_aloflts,

! POINTER TO OPTIONS TEXT
! LINK CONTROL FLAGS
! LOWEST ADDRESS ALLOCATED
! FREE MEMORY LISTHEAD
! CPU TIME AT START
! NUMBER OF SYMBOLS SEARCHED FOR IN THE WRONG LIBRARY
! NUMBER OF OBJ RECORDS READ FROM LIBRARIES
! NUMBER MODULES EXTRACTED EXPLICITLY
! NUMBER OF MODULES EXTRACTED TO RESOLVE SYMBOLS
! TWO PASS COUNT OF OBJECT RECORDS READ
! NUMBER OF DEBUG DATA RECORDS
! NUMBER OF BYTES IN DEBUG RECORDS
! VBN OF DEBUG SYMBOL TABLE
! NUMBER OF BLOCKS ALLOCATED
! END ADDRESS IN THE DST
! NUMBER OF GLOBAL SYMBOL TABLE RECORDS WRITTEN TO SEPARATE FILE
! NUMBER WRITTEN TO IMAGE FILE
! START TIME QUADWORD
! END TIME QUADWORD
! PASS 1 START TIME
! ALLOCATION/RELOCATION START TIME
! PASS 2 START TIME
! BULK OF MAP START TIME
! SYMBOL TABLE OUTPUT START TIME
! CPU TIME AT START OF PASS 1
! CPU TIME AT START OF ALLOCATION PHASE
! CPU TIME AT START OF PASS 2
! CPU TIME AT START OF MAP OUTPUT
! CPU TIME AT START OF SYMBOL TABLE OUTPUT
! PAGE FAULT COUNT AT START OF PASS 1
! PAGE FAULT COUNT AT START OF ALLOCATION PHASE
```



```
115 0229 1 lnk$gl_ps2flts, ! PAGE FAULT COUNT AT START OF PASS 2
116 0230 1 lnk$gl_mapflts, ! PAGE FAULT COUNT AT START OF MAP OUTPUT
117 0231 1 lnk$gl_stbflts, ! PAGE FAULT COUNT AT START OF SYMBOL TABLE OUTPUT
118 0232 1 lnk$gl_spagflts, ! PAGE FAULT COUNT AT START OF THE LINK
119 0233 1 lnk$gl_endflts, ! PAGE FAULT COUNT AT END
120 0234 1 lnk$gl_endcput; ! CPU TIME AT END
121 0235 1
122 0236 1 external routine
123 0237 1 cli$get_value,
124 0238 1 lnk$scalcelaps, ! ROUTINE TO DO THE QUADWORD ARITHMETIC
125 0239 1 ! RETURNING ADDRESS OF THE NEGATIVE ('DELTA') ELAPSED TIME
126 0240 1 lnk$mapout; ! OUPUTS LINE TO MAP
127 0241 1
128 0242 1 external literal
129 0243 1 len$sc_mapline : wordlit, ! LENGTH OF MAP LINE
130 0244 1 lnk$sk_libblocks : short; ! NUMBER OF BLOCKS IN WINDOW OF A LIBRARY
131 0245 1
132 0246 1 literal
133 0247 1 phases = 9; ! NUMBER OF PHASES FOR WHICH THERE ARE STATISTICS
134 0248 1
135 0249 1 !
136 0250 1 ! MODULE OWN STORAGE:
137 0251 1 !
138 0252 1 own
139 0253 1 command_desc : dynamic_descriptor;
140 0254 1 psect
141 0255 1 own = $split$(nopic, concatenate, local, noshare, noexecute, nowrite);
142 0256 1 own
143 0257 1 phastahd1 : descriptor ('!50<Performance Indicators!>Page Faults CPU Time Elapsed Time'),
144 0258 1 phastahd2 : descriptor ('!50<!22*-!>!11*-!8*-!12*-!'),
145 0259 1 phastafmt : descriptor ('!50<!AS!>!11UL!22L:!22L:!22L!22L!%T'),
146 0260 1 totaltim : descriptor ('Total run values:'),
147 0261 1 comandtim : descriptor ('Command processing:'),
148 0262 1 pass1tim : descriptor ('Pass 1:'),
149 0263 1 alloctim : descriptor ('Allocation/Relocation:'),
150 0264 1 pass2tim : descriptor ('Pass 2:'),
151 0265 1 maptim : descriptor ('Map data after object module synopsis:'),
152 0266 1 stbtim : descriptor ('Symbol table output:'),
153 P 0267 1 workset : descriptor (
154 0268 1 'Using a working set limited to !UL pages and !UL pages of data storage (excluding image)'),
155 0269 1 objrecs : descriptor ('!50<Total number object records read (both passes):!>!UL'),
156 P 0270 1 librecs : descriptor (
157 0271 1 'of which !UL were in libraries and !UL were DEBUG data records containing !UL bytes'),
158 P 0272 1 dbgdata : descriptor ('!UL bytes of DEBUG data were written, starting at VBN !UW with !UW blocks allocate
159 0273 1 '),
160 0274 1 extrmods : descriptor ('!50<Number of modules extracted explicitly!> = !UL'),
161 0275 1 srchmods : descriptor ('with !UL extracted to resolve undefined symbols'),
162 0276 1 futlsrch : descriptor ('!UL library searches were for symbols not in the library searched'),
163 0277 1 symrecs : descriptor ('A total of !UL global symbol table records was written'),
164 0278 1 phastatbl : blockvector [phases, 4] initial (
165 0279 1 0, lnk$gl_spagflts, lnk$gl_cpustim, lnk$gq_startim,
166 0280 1 comandtim, lnk$gl_ps1flts, lnk$gl_ps1cput, lnk$gq_ps1stim,
167 0281 1 pass1tim, lnk$gl_aloflts, lnk$gl_alocput, lnk$gq_alostim,
168 0282 1 alloctim, lnk$gl_ps2flts, lnk$gl_ps2cput, lnk$gq_ps2stim,
169 0283 1 pass2tim, lnk$gl_mapflts, lnk$gl_mapcput, lnk$gq_mapstim,
170 0284 1 maptim, lnk$gl_stbflts, lnk$gl_sfbcp, lnk$gq_sfbstim,
171 0285 1 stbtim, lnk$gl_endflts, lnk$gl_endcput, lnk$gq_endtim,
```

LNK\_STATSOUT  
V04=000

E 11  
16-Sep-1984 00:33:36 VAX-11 Bliss-32 V4.0-742  
14-Sep-1984 12:40:36 [LINKER.SRC]LNKSTATSO.B32;1

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(1)

: 172 0286 1  
: 173 0287 1  
: 174 0288 1  
: 175 0289 1  
: 176 0290 1

0  
totaltim,lnk\$gl\_spagflts,lnk\$gl\_cpustim,lnk\$gq\_startim,  
cvt2secs : initial (100),lnk\$gl\_endflts,lnk\$gl\_endcput,lnk\$gq\_endtim),  
cvtsecsmins : initial (60);



```
178 0291 1 global routine lnk$statsout : novalue = ! OUTPUT STATISTICS
179 0292 2 begin
180 0293 2 ++
181 0294 2 FUNCTIONAL DESCRIPTION:
182 0295 2
183 0296 2 THIS MODULE COMPUTES AND OUTPUTS TO THE MAP A GAGGLE OF THE STATISTICS
184 0297 2 ACCUMULATED BY THE LINKER AND THE SYSTEM DURING THE RUN
185 0298 2
186 0299 2 FORMAL PARAMETERS:
187 0300 2
188 0301 2 NONE
189 0302 2
190 0303 2 IMPLICIT INPUTS:
191 0304 2
192 0305 2 NONE
193 0306 2
194 0307 2 IMPLICIT OUTPUTS:
195 0308 2
196 0309 2 NONE
197 0310 2
198 0311 2 ROUTINE VALUE:
199 0312 2
200 0313 2 COMPLETION CODES:
201 0314 2
202 0315 2 NONE
203 0316 2
204 0317 2 SIDE EFFECTS:
205 0318 2
206 0319 2 NONE
207 0320 2
208 0321 2 --
209 0322 2 builtin
210 0323 2 ediv;
211 0324 2
212 0325 2 local
213 0326 2
214 0327 2 buffer : ch$sequence (bufferleng), ! OUTPUT LINE BUFFER
215 0328 2 outbufdesc : vector [2], ! ITS DESCRIPTOR
216 0329 2 pagefaults,
217 0330 2 cputime : vector [2],
218 0331 2 secfrac,
219 0332 2 cpusecs : vector [2],
220 0333 2 cpumins : vector [2],
221 0334 2 cpuhours,
222 0335 2 worksetlim,
223 0336 2 memused : ref vector,
224 0337 2 dbgbytes,
225 0338 2 outlineleng : word; ! LENGTH OF FORMATTED LINE RETURNED BY FAO
226 0339 2
227 0340 2 outbufdesc [0] = bufferleng; ! INITIALIZE FAO'S BUFFER
228 0341 2 outbufdesc [1] = buffer; ! DESCRIPTOR
229 0342 2 cputime [1] = 0;
230 0343 2 cpusecs [1] = 0;
231 0344 2 cpumins [1] = 0;
232 0345 2 lnk$mapout (buffer, 0);
233 0346 2 $fao (phastahd1, outlineleng, outbufdesc);
234 0347 2 lnk$mapout (buffer, .outline(leng);
```

```
235 0348 2 $fao (phastahd2, outlineleng, outbufdesc);
236 0349 2 lnk$mapout (buffer, .outline(leng));
237 0350 2
238 0351 2 incr i from 1 to phases - 1 do
239 0352 2
240 0353 2   if .phastatbl [.i, textadr] neq 0
241 0354 2   then
242 0355 2     begin
243 0356 2       pagefaults = ..phastatbl [.i, fltsadr] - ..phastatbl [.i - 1, fltsadr];
244 0357 2       cputime [0] = ..phastatbl [.i, cputadr] - ..phastatbl [.i - 1, cputadr];
245 0358 2       ediv (cvt2secs, cputime [0], cpusecs [0], secfrac);
246 0359 2       ediv (cvtsecsmins, cpusecs [0], cpumins [0], cpusecs [0]);
247 0360 2       ediv (cvtsecsmins, cpumins [0], cpuhours, cpumins [0]);
248 0361 2       $fao (phastafmt, outlineleng, outbufdesc, .phastatbl [.i, textadr], .pagefaults, .cpuhours,
249 0362 2         cpumins [0], cpusecs [0], secfrac,
250 0363 2         lnk$calcelaps (.phastatbl [.i - 1, stimadr],
251 0364 2           .phastatbl [.i, stimadr]));
252 0365 2       lnk$mapout (buffer, .outline(leng));
253 0366 2     end;
254 0367 2
255 0368 2 $adjwsl (pagcnt = 0, wsetlm = worksetlim);
256 0369 2 memused = lnk$gl_memlhd;
257 0370 2
258 0371 2 while .memused [0] neq 0 do
259 0372 2   memused = .memused [0];
260 0373 2
261 0374 2 memused = (memused [0] - .lnk$gl_minaddr + 511)/512;
262 0375 2 lnk$mapout (buffer, 0);
263 0376 2 $fao (workset, outlineleng, outbufdesc, .worksetlim, .memused);
264 0377 2 lnk$mapout (buffer, .outline(leng));
265 0378 2 lnk$mapout (buffer, 0);
266 0379 2 $fao (objrecs, outlineleng, outbufdesc, .lnk$gl_objrecs);
267 0380 2 lnk$mapout (buffer, .outline(leng));
268 0381 2 $fao (librecs, outlineleng, outbufdesc, .lnk$gl_librecs, .lnk$gw_dbgrecs, .lnk$gl_dbgestim);
269 0382 2 lnk$mapout (buffer, .outline(leng));
270 0383 2
271 0384 2 if (dbgbytes = .lnk$gl_dstend) neq 0 and (.lnk$gl_ctlmsk [lnk$g_dbg] or .lnk$gl_ctlmsk [lnk$g_trace])
272 0385 2 then
273 0386 2   begin
274 0387 2     $fao (dbgdata, outlineleng, outbufdesc, .dbgbytes, .lnk$gw_dstvbn, .lnk$gw_dstblks);
275 0388 2     lnk$mapout (buffer, .outline(leng));
276 0389 2   end;
277 0390 2
278 0391 2 lnk$mapout (buffer, 0);
279 0392 2 $fao (extrmods, outlineleng, outbufdesc, .lnk$gl_nmodsexp);
280 0393 2 lnk$mapout (buffer, .outline(leng));
281 0394 2 $fao (srchmods, outlineleng, outbufdesc, .lnk$gl_nmodsrch);
282 0395 2 lnk$mapout (buffer, .outline(leng));
283 0396 2 lnk$mapout (buffer, 0);
284 0397 2 $fao (futlsrch, outlineleng, outbufdesc, .lnk$gl_futlsrch);
285 0398 2 lnk$mapout (buffer, .outline(leng));
286 0399 2 lnk$mapout (buffer, 0);
287 0400 2 $fao (symrecs, outlineleng, outbufdesc, (.lnk$gw_symrecs + .lnk$gw_gstreecs));
288 0401 2 lnk$mapout (buffer, .outline(leng));
289 0402 2 lnk$mapout (buffer, 0);
290 0403 2
291 0404 2 ! PRINT THE COMMAND LINE
```



```

292 0405 !
293 0406 begin
294 0407 local
295 0408     pchars,
296 0409     nchars,
297 0410     chars;
298 0411
299 0412 pchars = 0;
300 0413 cli$get_value(sd$line, command_desc);      ! Get command line from CLI
301 0414 chars = .command_desc [dsc$w_length];
302 0415
303 0416 while (.chars gtr 0) do
304 0417     begin
305 0418         nchars = min (.chars, len$c_mapline);
306 0419         lnk$mapout (.command_desc [dsc$a_pointer] + .pchars, .nchars);
307 0420         chars = .chars - .nchars;
308 0421         pchars = .pchars + .nchars;
309 0422     end;
310 0423
311 0424 PRINT THE OPTION FILE (IF PRESENT) if "/FULL" MAP REQUESTED
312 0425
313 0426 if .lnk$gl_ctlmsk [lnk$w_long]
314 0427 then while .lnk$gl_optextp neq 0
315 0428     do begin
316 0429         lnk$mapout (lnk$gl_optextp [oeb$t_text]          !PRINT THE LINE
317 0430                     ,lnk$gl_optextp [oeb$w_bytcnt]
318 0431                     );
319 0432         lnk$gl_optextp = .lnk$gl_optextp [oeb$l_nxtoeb];  !LINK TO NEXT LINE
320 0433     end;
321 0434
322 0435 end;
323 0436 return;
324 0437 end;

```

! End of LNK\$STATSOUT

```

.TITLE LNK_STATSOUT
.IDENT \V04-000\
.PSECT $SPLITS,NOWRT,NOEXE,2

45 4E 49 4C 24 00000 P.AAB: .ASCII \ $LINE\
00005
00000005 00008 P.AAA: .BLKB 3
00000000' 0000C .LONG 5
00010 P.AAC: .ADDRESS P.AAB
0001F .ASCII \!50<Performance Indicators!>Page Faults-
0002E \<9>
00038 .ASCII \CPU Time\<9>\Elapsed Time\<0><0><0>
00047
0000003D 00050 PHASTAHD1:
00054 .LONG 61
00058 P.AAD: .ADDRESS P.AAC
00067 .ASCII \!50<!22*-!>!11*-!<9>\!8*-!<9>\!12*-!<0>
00074 PHASTAHD2:
00078 .LONG 27
00000000' .ADDRESS P.AAD

```

LNK\_STATSOUT  
V04=000

I 11  
16-Sep-1984 00:33:36  
14-Sep-1984 12:40:36

VAX-11 Bliss-32 V4.0-742  
[LINKER.SRC]LNKSTATSO.B32;1

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(2)

09	4C	55	31	31	21	3E	21	53	41	21	3C	30	35	21	0007C	P.AAE:	.ASCII	\!50<!AS!>!11UL\<9>\!2ZL:!2ZL:!2ZL.!2ZL\	:	
2E	4C	5A	32	21	3A	4C	5A	32	21	3A	4C	5A	32	21	0008B				:	
									00	00	54	25	21	09	0009A				:	
															0009E		.ASCII	<9>\!%T\<0><0>	:	
															000A4	PHASTAFMT:			:	
																	.LONG	38	:	
65	75	6C	61	76	20	6E	75	72	20	6C	61	74	6F	54	000A8	P.AAF:	.ADDRESS	P.AAE	:	
										00	00	00	3A	73	000AC	P.AAF:	.ASCII	\Total run values:\<0><0><0>	:	
															000BB				:	
															000C0	TOTALTIM:			:	
																	.LONG	17	:	
6F	72	70	20	64	6E	61	6D	6D	6F	43	20	20	20	20	000C4	P.AAG:	.ADDRESS	P.AAF	:	
						00	3A	67	6E	69	73	73	65	63	000C8	P.AAG:	.ASCII	\	Command processing:\<0>	:
															000D7				:	
															000E0	COMANDTIM:			:	
																	.LONG	23	:	
															000E4	P.AAH:	.ADDRESS	P.AAG	:	
															000E8	P.AAH:	.ASCII	\	Pass 1:\<0>	:
															000F4	PASS1TIM:			:	
																	.LONG	11	:	
2F	6E	6F	69	74	61	63	6F	6C	6C	41	20	20	20	20	000F8	P.AAI:	.ADDRESS	P.AAH	:	
		00	00	3A	6E	6F	69	74	61	63	6F	6C	65	52	000FC	P.AAI:	.ASCII	\	Allocation/Relocation:\<0><0>	:
															0010B				:	
															00118	ALLOCTIM:			:	
																	.LONG	26	:	
															0011C	P.AAJ:	.ADDRESS	P.AAI	:	
															00120	P.AAJ:	.ASCII	\	Pass 2:\<0>	:
															0012C	PASS2TIM:			:	
																	.LONG	11	:	
66	61	20	61	74	61	64	20	70	61	4D	20	20	20	20	00130	P.AAK:	.ADDRESS	P.AAJ	:	
75	64	6F	6D	20	74	63	65	6A	62	6F	20	20	20	20	00134	P.AAK:	.ASCII	\	Map data after object module synopsis\	:
															00143				:	
															00152				:	
															0015C		.ASCII	\s:\<0><0>	:	
															00160	MAPTIM:	.LONG	42	:	
															00164		.ADDRESS	P.AAK	:	
6C	62	61	74	20	6C	6F	62	6D	79	53	20	20	20	20	00168	P.AAL:	.ASCII	\	Symbol table output:\	:
						3A	74	75	70	74	75	6F	20	65	00177				:	
															00180	STBTIM:	.LONG	24	:	
															00184		.ADDRESS	P.AAL	:	
67	6E	69	6B	72	6F	77	20	61	20	67	6E	69	73	55	00188	P.AAM:	.ASCII	\Using a working set limited to !UL pages\	:	
6F	74	20	64	65	74	69	6D	69	6C	20	74	65	73	20	00197				:	
															001A6				:	
20	73	65	67	61	70	20	4C	55	21	20	64	6E	61	20	001B0		.ASCII	\	and !UL pages of data storage (excludin\	:
65	67	61	72	6F	74	73	20	61	74	61	64	20	66	6F	001BF				:	
															001CE				:	
															001D8		.ASCII	\g image)\	:	
															001E0	WORKSET:	.LONG	88	:	
															001E4		.ADDRESS	P.AAM	:	
65	62	6D	75	6E	20	6C	61	74	6F	54	3C	30	35	21	001E8	P.AAN:	.ASCII	\!50<Total number object records read (bo\	:	
64	72	6F	63	65	72	20	74	63	65	6A	62	6F	20	72	001F7				:	
															00206				:	
55	21	3E	21	3A	29	73	65	73	73	61	70	20	68	74	00210		.ASCII	\th passes):!>!UL\	:	
															0021F				:	
															00220	OBJRECS:	.LONG	56	:	
															00224		.ADDRESS	P.AAN	:	
55	21	20	68	63	69	68	77	20	66	6F	20	20	20	20	00228	P.AAO:	.ASCII	\	of which !UL were in libraries and !\	:



```
61 72 62 69 6C 20 6E 69 20 65 72 65 77 20 4C 00237
64 20 47 55 42 45 44 20 65 72 65 77 20 4C 00246
6E 6F 63 20 73 64 72 6F 63 65 72 20 61 74 61 00250
55 21 20 67 6E 69 6E 69 61 74 0025F
00 73 65 74 79 62 20 4C 0026E
00000057 00278
00000000 00280 LIBRECS: .LONG 87
00000000 00284 .ADDRESS P.AAO
45 44 20 66 6F 20 73 65 74 79 62 20 4C 55 21 00288 P.AAP: .ASCII \!UL bytes of DEBUG data were written,sta\
77 20 65 72 65 77 20 61 74 61 64 20 47 55 42 00297
61 74 73 2C 6E 65 74 74 69 72 002A6
55 21 20 4E 42 56 20 74 61 20 67 6E 69 74 72 002B0
63 6F 6C 62 20 57 55 21 20 68 74 69 77 20 57 002BF
74 61 63 6F 6C 6C 61 20 73 6B 002CE
00 00 00 64 65 002D8
00000052 002DC DBGDATA: .LONG 82
00000000 002E0 .ADDRESS P.AAP
6D 20 66 6F 20 72 65 62 6D 75 4E 3C 30 35 21 002E4 P.AAQ: .ASCII \!50<Number of modules extracted explicit\
65 74 63 61 72 74 78 65 20 73 65 6C 75 64 6F 002F3
00 00 4C 55 21 20 3D 20 3E 21 79 6C 00302
00000032 0030C .ASCII \ly!> = !UL\<0><0>
00000000 00318 EXTRMODS: .LONG 50
00000000 0031C .ADDRESS P.AAQ
78 65 20 4C 55 21 20 68 74 69 77 20 20 20 20 00320 P.AAR: .ASCII \ with !UL extracted to resolve undefi\
6F 73 65 72 20 6F 74 20 64 65 74 63 61 72 74 0032F
00 73 6C 6F 62 6D 79 73 20 64 65 6E 0033E
00000033 00348 .ASCII \ned symbols\<0>
00000000 00354 SRCHMODS: .LONG 51
00000000 00358 .ADDRESS P.AAR
61 65 73 20 79 72 61 72 62 69 6C 20 4C 55 21 0035C P.AAS: .ASCII \!UL library searches were for symbols no\
20 72 6F 66 20 65 72 65 77 20 73 65 68 63 72 0036B
6F 6E 20 73 6C 6F 62 6D 79 73 0037A
72 61 72 62 69 6C 20 65 68 74 20 6E 69 20 74 00384
00 00 00 64 65 68 63 72 61 65 73 20 79 00393
00000041 003A0 FUTLSRCH: .LONG 65
00000000 003A4 .ADDRESS P.AAS
20 4C 55 21 20 66 6F 20 6C 61 74 6F 74 20 41 003A8 P.AAT: .ASCII \A total of !UL global symbol table recor\
74 20 6C 6F 62 6D 79 73 20 6C 61 62 6F 6C 67 003B7
00 6E 65 74 74 69 72 77 20 73 61 77 20 73 64 003C6
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 003D0
00000036 003DF .ASCII \ds was written\<0><0>
00000000 003E0 SYMRECS: .LONG 54
00000000 003E4 .ADDRESS P.AAT
00000000 003E8 PHASTATBL: .LONG 0
00000000 003EC .ADDRESS LNK$GL_SPAGFLTS, LNK$GL_CPUSTIM, -
00000000 00404 LNK$GL_STARTIM, COMANDTIM, -
00000000 0041C LNK$GL_PS1FLTS, LNK$GL_PS1CPUT, -
00000000 00434 LNK$GL_PS1STIM, PASS1TIM, LNK$GL_ALOFLTS, -
00000000 0044C LNK$GL_ALOCPUT, LNK$GL_ALOSTIM, ALLOCTIM, -
LNK$GL_PS2FLTS, LNK$GL_PS2CPUT, -
LNK$GL_PS2STIM, PASS2TIM, LNK$GL_MAPFLTS, -
LNK$GL_MAPCPUT, LNK$GL_MAPSTIM, MAPTIM, -
LNK$GL_STBFLTS, LNK$GL_STBCPUT, -
```

```
00000000G 00000000G 00000000' 00000000G 00000000G 00000000 00458
00000000G 0045C
00000000G 00474
00000064 00478 CVT2SECS:
0000003C 0047C CVTSECSMINS:
                                .LONG 100
                                .LONG 60
                                .PSECT $OWN$,NOEXE,2
0000 00000 COMMAND_DESC:
00 00002 .WORD 0
02 00003 .BYTE 0
00000000 00004 .BYTE 2
                                .LONG 0
SD_$LINE= P.AAA
.EXTRN LNK$GL_OPTEXTP, LNK$GL_CTLMSK
.EXTRN LNK$GL_MINADDR, LNK$GL_MEMLHD
.EXTRN LNK$GL_CPUTIM, LNK$GL_FUTLSRCH
.EXTRN LNK$GL_LIBRECS, LNK$GL_NMODSEXP
.EXTRN LNK$GL_NMODSRCH
.EXTRN LNK$GL_OBJRECS, LNK$GW_DBGRECS
.EXTRN LNK$GL_DBGESTIM
.EXTRN LNK$GW_DSTVBN, LNK$GW_DSTBLKS
.EXTRN LNK$GL_DSTEND, LNK$GW_SYMRECS
.EXTRN LNK$GW_GSTRECS, LNK$GQ_STARTIM
.EXTRN LNK$GQ_ENDTIM, LNK$GQ_PS1STIM
.EXTRN LNK$GQ_ALOSTIM, LNK$GQ_PS2STIM
.EXTRN LNK$GQ_MAPSTIM, LNK$GQ_STBSTIM
.EXTRN LNK$GL_PS1CPUT, LNK$GL_ALOCPUT
.EXTRN LNK$GL_PS2CPUT, LNK$GL_MAPCPUT
.EXTRN LNK$GL_STBCPUT, LNK$GL_PS1FLTS
.EXTRN LNK$GL_ALOFLTS, LNK$GL_PS2FLTS
.EXTRN LNK$GL_MAPFLTS, LNK$GL_STBFLTS
.EXTRN LNK$GL_SPAGFLTS
.EXTRN LNK$GL_ENDFLTS, LNK$GL_ENDCPUT
.EXTRN CLISGET VALUE, LNK$CALCELAPS
.EXTRN LNK$MAPOUT, LNK$C_MAPLINE
.EXTRN LNK$K_LIBBLOCKS
.EXTRN SYS$FAO, SYS$ADJWSL
.PSECT $CODE$,NOWRT,2
.OFFC 00000
.ENTRY LNK$STATSOUT, Save R2,R3,R4,R5,R6,R7,R8,R9,-; 0291
R10,R11
MOVAB LNK$GL_CTLMSK, R11
MOVAB SYS$FAO, R10
MOVAB LNK$MAPOUT, R9
MOVAB PHASTATBL, R8
MOVAB -172(SP), SP
MOVZBL #132, OUTBUFDESC
MOVAB BUFFER, OUTBUFDESC+4
CLRL CPUTIME+4
0340
0341
0342
```



10	08	56	AE	18	08	AE	18	08	AE	0090	C8	7B	000A6	EDIV	CVT2SECS, CPUTIME, CPUSECS, SECFRAC	0358		
										0094	C8	7B	000AF	EDIV	CVTSECSMINS, CPUSECS, CPUMINS, CPUSECS	0359		
										0094	C8	7B	000B9	EDIV	CVTSECSMINS, CPUMINS, CPUHOURS, CPUMINS	0360		
										0C	A843	9F	000C2	PUSHAB	PHASTATBL+12[R3]	0364		
											9E	DD	000C6	PUSHL	@(SP)+			
										FC	A840	9F	000C8	PUSHAB	PHASTATBL-4[R0]			
											9E	DD	000CC	PUSHL	@(SP)+			
											02	FB	000CE	CALLS	#2, LNK\$CALCELAPS			
											50	DD	000D5	PUSHL	R0			
											56	DD	000D7	PUSHL	SECFRAC			
										18	AE	DD	000D9	PUSHL	CPUSECS			
										14	AE	DD	000DC	PUSHL	CPUMINS			
											55	DD	000DF	PUSHL	CPUHOURS			
											57	DD	000E1	PUSHL	PAGEFAULTS			
											6843	9F	000E3	PUSHAB	PHASTATBL[R3]			
											9E	DD	000E6	PUSHL	@(SP)+			
										3C	AE	9F	000E8	PUSHAB	OUTBUFDESC			
										24	AE	9F	000EB	PUSHAB	OUTLINELENG			
										FCBC	C8	9F	000EE	PUSHAB	PHASTAFMT			
											0A	FB	000F2	CALLS	#10, SYSSFAO			
										6A	7E	04	AE	3C	000F5	MOVZWL	OUTLINELENG, -(SP)	0365

00000000G 00

FF6A	52	69	2C	AE	9F	000F9	PUSHAB	BUFFER	:	
		01		02	FB	000FC	CALLS	#2, LNK\$MAPOUT	:	0353
				08	F1	000FF	ACBL	#8, #1, 1, 1\$	:	0368
				5E	DD	00105	PUSHL	SP	:	
				7E	D4	00107	CLRL	-(SP)	:	
	00000000G	00		02	FB	00109	CALLS	#2, SYSS\$ADJWSL	:	
		52	00000000G	00	9E	00110	MOVAB	LNK\$GL_MEMLHD, MEMUSED	:	0369
				62	D5	00117	TSTL	(MEMUSED)	:	0371
				05	13	00119	BEQL	5\$	:	
		52		62	D0	0011B	MOVL	(MEMUSED), MEMUSED	:	0372
				F7	11	0011E	BRB	4\$	:	
50		52	00000000G	00	C3	00120	SUBL3	LNK\$GL_MINADDR, MEMUSED, R0	:	0374
		50	01FF	C0	9E	00128	MOVAB	511(R0), R0	:	
52		50	00000200	8F	C7	0012D	DIVL3	#512, R0, MEMUSED	:	
				7E	D4	00135	CLRL	-(SP)	:	0375
			2C	AE	9F	00137	PUSHAB	BUFFER	:	
		69		02	FB	0013A	CALLS	#2, LNK\$MAPOUT	:	
				52	DD	0013D	PUSHL	MEMUSED	:	0376
			04	AE	DD	0013F	PUSHL	WORKSETLIM	:	
			28	AE	9F	00142	PUSHAB	OUTBUFDESC	:	
			10	AE	9F	00145	PUSHAB	OUTLINELENG	:	
			FDF8	C8	9F	00148	PUSHAB	WORKSET	:	
6A				05	FB	0014C	CALLS	#5, SYSS\$FAO	:	
7E			04	AE	3C	0014F	MOVZWL	OUTLINELENG, -(SP)	:	0377
			2C	AE	9F	00153	PUSHAB	BUFFER	:	
69				02	FB	00156	CALLS	#2, LNK\$MAPOUT	:	
				7E	D4	00159	CLRL	-(SP)	:	0378
			2C	AE	9F	0015B	PUSHAB	BUFFER	:	
69				02	FB	0015E	CALLS	#2, LNK\$MAPOUT	:	
			00000000G	00	DD	00161	PUSHL	LNK\$GL_OBJRECS	:	0379
			24	AE	9F	00167	PUSHAB	OUTBUFDESC	:	
			0C	AE	9F	0016A	PUSHAB	OUTLINELENG	:	
			FE38	C8	9F	0016D	PUSHAB	OBJRECS	:	
6A				04	FB	00171	CALLS	#4, SYSS\$FAO	:	
7E			04	AE	3C	00174	MOVZWL	OUTLINELENG, -(SP)	:	0380
			2C	AE	9F	00178	PUSHAB	BUFFER	:	
69				02	FB	0017B	CALLS	#2, LNK\$MAPOUT	:	
			00000000G	00	DD	0017E	PUSHL	LNK\$GL_DBGESTIM	:	0381
7E			00000000G	00	3C	00184	MOVZWL	LNK\$GL_DBGRECS, -(SP)	:	
			00000000G	00	DD	0018B	PUSHL	LNK\$GL_LIBRECS	:	
			2C	AE	9F	00191	PUSHAB	OUTBUFDESC	:	
			14	AE	9F	00194	PUSHAB	OUTLINELENG	:	
			FE98	C8	9F	00197	PUSHAB	LIBRECS	:	
6A				06	FB	0019B	CALLS	#6, SYSS\$FAO	:	
7E			04	AE	3C	0019E	MOVZWL	OUTLINELENG, -(SP)	:	0382
			2C	AE	9F	001A2	PUSHAB	BUFFER	:	
69				02	FB	001A5	CALLS	#2, LNK\$MAPOUT	:	
50			00000000G	00	D0	001A8	MOVL	LNK\$GL_DSTEND, DBGBYTES	:	0384
				30	13	001AF	BEQL	7\$	:	
05				06	E0	001B1	BBS	#6, LNK\$GL_CTLMSK, 6\$	:	
27				02	E1	001B5	BBC	#2, LNK\$GL_CTLMSK+2, 7\$	:	
	02			00	3C	001BA	MOVZWL	LNK\$GL_DSTBLKS, -(SP)	:	0387
			00000000G	00	3C	001C1	MOVZWL	LNK\$GL_DSTVBN, -(SP)	:	
			00000000G	50	DD	001C8	PUSHL	DBGBYTES	:	
			2C	AE	9F	001CA	PUSHAB	OUTBUFDESC	:	
			14	AE	9F	001CD	PUSHAB	OUTLINELENG	:	
			FEF4	C8	9F	001D0	PUSHAB	DBGDATA	:	



6A		06	FB	001D4	CALLS	#6, SYSSFAO		
7E	04	AE	3C	001D7	MOVZWL	OUTLINELENG, -(SP)	:	0388
	2C	AE	9F	001DB	PUSHAB	BUFFER	:	
69		02	FB	001DE	CALLS	#2, LNK\$MAPOUT	:	
		7E	D4	001E1	CLRL	-(SP)	:	0391
	2C	AE	9F	001E3	PUSHAB	BUFFER	:	
69		02	FB	001E6	CALLS	#2, LNK\$MAPOUT	:	
	00000000G	00	DD	001E9	PUSHL	LNK\$GL_NMODSEXP	:	0392
	24	AE	9F	001EF	PUSHAB	OUTBUFDESC	:	
	0C	AE	9F	001F2	PUSHAB	OUTLINELENG	:	
	FF30	C8	9F	001F5	PUSHAB	EXTRMODS	:	
6A		04	FB	001F9	CALLS	#4, SYSSFAO		
7E	04	AE	3C	001FC	MOVZWL	OUTLINELENG, -(SP)	:	0393
	2C	AE	9F	00200	PUSHAB	BUFFER	:	
69		02	FB	00203	CALLS	#2, LNK\$MAPOUT	:	
	00000000G	00	DD	00206	PUSHL	LNK\$GL_NMODSRCH	:	0394
	24	AE	9F	0020C	PUSHAB	OUTBUFDESC	:	
	0C	AE	9F	0020F	PUSHAB	OUTLINELENG	:	
	FF6C	C8	9F	00212	PUSHAB	SRCHMODS	:	
6A		04	FB	00216	CALLS	#4, SYSSFAO		
7E	04	AE	3C	00219	MOVZWL	OUTLINELENG, -(SP)	:	0395
	2C	AE	9F	0021D	PUSHAB	BUFFER	:	
69		02	FB	00220	CALLS	#2, LNK\$MAPOUT	:	
		7E	D4	00223	CLRL	-(SP)	:	0396
	2C	AE	9F	00225	PUSHAB	BUFFER	:	
69		02	FB	00228	CALLS	#2, LNK\$MAPOUT	:	
	00000000G	00	DD	0022B	PUSHL	LNK\$GL_FUTLSRCH	:	0397
	24	AE	9F	00231	PUSHAB	OUTBUFDESC	:	
	0C	AE	9F	00234	PUSHAB	OUTLINELENG	:	
	B8	A8	9F	00237	PUSHAB	FUTLSRCH	:	
6A		04	FB	0023A	CALLS	#4, SYSSFAO		
7E	04	AE	3C	0023D	MOVZWL	OUTLINELENG, -(SP)	:	0398
	2C	AE	9F	00241	PUSHAB	BUFFER	:	
69		02	FB	00244	CALLS	#2, LNK\$MAPOUT	:	
		7E	D4	00247	CLRL	-(SP)	:	0399
	2C	AE	9F	00249	PUSHAB	BUFFER	:	
69		02	FB	0024C	CALLS	#2, LNK\$MAPOUT	:	
50	00000000G	00	3C	0024F	MOVZWL	LNK\$GW_SYMRECS, R0	:	0400
51	00000000G	00	3C	00256	MOVZWL	LNK\$GW_GSTRECS, R1	:	
		6140	9F	0025D	PUSHAB	(R1)[R0]	:	
	24	AE	9F	00260	PUSHAB	OUTBUFDESC	:	
	0C	AE	9F	00263	PUSHAB	OUTLINELENG	:	
	F8	A8	9F	00266	PUSHAB	SYMRECS	:	
6A		04	FB	00269	CALLS	#4, SYSSFAO		
7E	04	AE	3C	0026C	MOVZWL	OUTLINELENG, -(SP)	:	0401
	2C	AE	9F	00270	PUSHAB	BUFFER	:	
69		02	FB	00273	CALLS	#2, LNK\$MAPOUT	:	
		7E	D4	00276	CLRL	-(SP)	:	0402
	2C	AE	9F	00278	PUSHAB	BUFFER	:	
69		02	FB	0027B	CALLS	#2, LNK\$MAPOUT	:	
		53	D4	0027E	CLRL	PCHARS	:	0412
	00000000'	EF	9F	00280	PUSHAB	COMMAND_DESC	:	0413
	FC20	C8	9F	00286	PUSHAB	SD\$LINE	:	
00000000G	00	02	FB	0028A	CALLS	#2, CLISGET_VALUE	:	
	52	00000000'	EF	3C	MOVZWL	COMMAND_DESC, CHARS	:	0414
		52	D5	00298	TSTL	CHARS	:	0416
		28	15	0029A	BLEQ	10\$	:	

8\$:

00000000G	50	52	D0	0029C	MOVL	CHARS, R0	: 0418
	8F	50	D1	0029F	CMPL	R0, #LENSC_MAPLINE	:
		05	15	002A6	BLEQ	9\$	:
	50	8F	3C	002A8	MOVZWL	#LENSC_MAPLINE, R0	:
	54	50	D0	002AD	MOVL	R0, NCHARS	:
		54	DD	002B0	PUSHL	NCHARS	: 0419
		43	9F	002B2	PUSHAB	@COMMAND_DESC+4[PCHARS]	:
	69	02	FB	002B9	CALLS	#2, LNK\$MAPOUT	:
	52	54	C2	002BC	SUBL2	NCHARS, CHARS	: 0420
	53	54	C0	002BF	ADDL2	NCHARS, PCHARS	: 0421
		D4	11	002C2	BRB	8\$	: 0416
	23	AB	E9	002C4	BLBC	LNK\$GL_CTLMSK+1, 12\$	: 0426
	50	00	D0	002C8	MOVL	LNK\$GL_OPTEXTP, R0	: 0427
		1A	13	002CF	BEQL	12\$	:
	7E	A0	3C	002D1	MOVZWL	4(R0), -(SP)	: 0430
		A0	9F	002D5	PUSHAB	6(R0)	: 0429
	69	02	FB	002D8	CALLS	#2, LNK\$MAPOUT	:
	50	00	D0	002DB	MOVL	LNK\$GL_OPTEXTP, R0	: 0432
00000000G	00	60	D0	002E2	MOVL	(R0), [LNK\$GL_OPTEXTP	:
		DD	11	002E9	BRB	11\$	: 0427
		04	002EB	12\$:	RET		: 0437

; Routine Size: 748 bytes, Routine Base: \$CODE\$ + 0000

: 325 0438 1  
: 326 0439 1 end  
: 327 0440 0 eludom

## PSECT SUMMARY

Name	Bytes	Attributes
\$PLITS	1152	NOVEC,NOWRT, RD ,NOEXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)
\$OWNS	8	NOVEC, WRT, RD ,NOEXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)
\$CODE\$	748	NOVEC,NOWRT, RD , EXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)

## Library Statistics

File	----- Total	Symbols Loaded	----- Percent	Pages Mapped	Processing Time
\$255\$DUA28:[SYSLIB]LIB.L32;1	18619	9	0	1000	00:02.0
\$255\$DUA28:[LINKER.OBJ]DATBAS.L32;1	538	6	1	28	00:00.8



LNK\_STATSOUT  
V04=000

C 12  
16-Sep-1984 00:33:36  
14-Sep-1984 12:40:36

VAX-11 Bliss-32 V4.0-742  
[LINKER.SRC]LNKSTATSO.B32;1

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(2)

COMMAND QUALIFIERS

; BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LISS:LNKSTATSO/OBJ=OBJ\$:LNKSTATSO MSRC\$:LNKSTATSO/UPDATE=(ENH\$:LNKSTATSO)  
; 328 0441 0 !End of module  
; Size: 748 code + 1160 data bytes  
; Run Time: 00:17.7  
; Elapsed Time: 00:54.4  
; Lines/CPU Min: 1499  
; Lexemes/CPU-Min: 15372  
; Memory Used: 217 pages  
; Compilation Complete



0219 AH-BT13A-SE  
VAX/VMS V4.0

DIGITAL EQUIPMENT CORPORATION  
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LNKPROLTB  
LIS

LNKSYMTBL  
LIS

LNKSYMOUT  
LIS

LNKUMALLO  
LIS

LNKPSCTBL  
LIS

LNKPROSHR  
LIS

LNKSTATSD  
LIS